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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,002	10/03/2003	Jozef J.G. Bosch	47161-00041USPT	8899

30223 7590 12/01/2006

JENKENS & GILCHRIST, P.C.
225 WEST WASHINGTON
SUITE 2600
CHICAGO, IL 60606

EXAMINER

CAI, WAYNE HUU

ART UNIT	PAPER NUMBER
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2617

DATE MAILED: 12/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/679,002

Applicant(s)

BOSCH ET AL.

Examiner

Wayne Cai

Art Unit

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25 is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-24 and 26-28 is/are rejected.
- 7) ☒ Claim(s) 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Claims 1-28 are currently pending.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 11, 2006 has been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6, 11-13, 20, 22-24, and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894).

Regarding claim 1, Kerns discloses a portable communication device (hearing device 210), comprising:

- at least one peripheral device including an electro-mechanical or electro-acoustical component (fig. 2, microphone 225, and speaker 227);

- a master component (fig. 2, digital signal processor (DSP) 213; and its descriptions);
- a system bus (common bus 217, and audio bus 23) coupled to said at least one peripheral device (i.e., elements 211, 225, 227), said system bus including at least two signal-carrying lines.

Kerns, however, does not specifically disclose one of said lines carrying a digital signal and at least one other intended signal between said master component and said at least one peripheral device, said one of said lines being termed a composite line.

In a similar endeavor, Gates discloses error generation circuit for testing a digital bus. Gates further discloses a bus system includes at least two signal-carrying lines (see elements 103-107 of fig. 3). Gates further discloses one of said lines (i.e., line 107 of fig. 3) carrying a digital signal and at least one other intended signal (i.e., address signal and data signals. See figs. 3 & 4 and its descriptions) between said master component (i.e., master 100 of fig. 3) and said at least one peripheral device (i.e., target 102), said one of said lines being termed a composite line.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kerns in view of Gates.

The motivation/suggestion for doing so would have been to reduce the interconnection conductors or wires/lines in the circuitry, and also allow a bus wire for transmission of time-multiplexed data signals over the bus wire with a reference clock cycle.

With further regard to claim 26, Gates further discloses a bus system including at least three wires (elements 103-107).

Regarding claim 2, Kerns and Gates disclose all limitations within claims described above. Kerns also discloses wherein said portable communication device is one of a hearing instrument, a headset, a personal digital assistant, and a portable telephone, and is adapted to receive power from a battery to which one of said at least two signal-carrying lines is coupled (col. 2, lines 30-47; fig. 2, "PWR", "CLOCK", and "DATA").

Regarding claim 3, Kerns and Gates disclose all limitations within claims described above. Kerns also discloses wherein said electro-mechanical or electro-acoustical component is one of an electret-type condenser microphone, a MEMS-based microphone, a receiver, a telecoil, a volume control, a sensitivity control, and a switch (element 243).

Regarding claim 6, Kerns and Gates disclose all limitations within claims described above. Gates further discloses wherein said composite line carries at least any two of a power signal, a reference signal, a clock signal, a synchronization signal, and a data signal (see fig. 4 and "AD" signal).

Regarding claims 11-12, and 27, Kerns and Gates disclose all limitations within claims as described above. Kerns also discloses said master component and said at least one peripheral device, operate at a voltage between about 0.7 and about 2.0 volts (Table 1). The combination of cited references, however, do not specifically teach or suggest the power consumption of said system bus is between substantially 30

microwatts and substantially 1 milliwatt, and the total power consumption of said portable communication device is between substantially 0.2 milliwatts and substantially 2 watts. However, it would be obvious to one skilled in the art that these components must be coupled to the system bus in order to operate. Furthermore, the selected range of resistors and the power consumption of the system bus solely relies on the design choices; therefore, the claimed feature is not novel.

Regarding claim 13, Kerns and Gates disclose all limitations within claims as described above. Kerns also discloses wherein said master component is one of a digital signal processor and an ASIC (fig. 2, element 213).

Regarding claim 20, Kerns and Gates disclose all limitations within claims as described above. Kerns and Gates also disclose including an external interface; said interface being coupled to an external system bus that includes at least two signal-carrying lines, one of said lines carrying a digital signal and at least one other electrical signal between at least one external master component and an external peripheral device that includes an electro-mechanical or electro-acoustical component, said external system bus being communicatively coupled to said system bus via said external interface (refer to rejection of claim 1, and fig. 3 and 4 of Gates and its descriptions).

Regarding claim 22, Kerns and Gates disclose all limitations within claims as described above. Kerns also discloses wherein said portable communication device is a hearing instrument (abstract)), said at least one peripheral device includes a

microphone and a receiver (elements 211 & 225), said digital signal including a digital audio signal (col. 2, lines 57-65).

Regarding claims 23 and 24, Kerns and Gates disclose all limitations within claims as described above. Although the cited references do not specifically teach or suggest wherein said digital signal is a data signal that includes control data for controlling a characteristic of said at least one peripheral device, and said digital signal is a data signal that includes digital audio data. However, it is obvious to one skilled in the art to modify the cited references to include the digital signals to be audio signals or control signals that control the characteristic of the peripheral device.

The motivation/suggestion for doing so would have been to process a desired function/operation, and/or deliver an output to user.

Regarding claim 28, Kerns and Gates disclose all limitations within claims as described above. Kerns also discloses peripheral devices each including an electro-mechanical or electro-acoustical component, said system bus being coupled to said at least three peripheral devices (i.e., microphone, speaker).

4. Claims 4, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894), and further in view of Yamamoto et al. (hereinafter "Yamamoto", US 6,968,995).

Regarding claim 4, Kerns and Gates disclose all limitations within claims described above. Kerns and Gates fail to teach or suggest the portable communication

device further including a resistor or a current source, wherein said system bus is coupled to said resistor or to said current source.

In a similar endeavor, Yamamoto discloses an integrated circuit for protocol control. Yamamoto further discloses suggest the portable communication device further including a resistor or a current source, wherein said system bus is coupled to said resistor or to said current source (col. 23, lines 10-20, and col. 24, lines 48-59).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kerns in view of Gates, and further in view of

The motivation/suggestion for doing so would have been to ensure that the device would be able to operate at either high or low voltage.

Regarding claim 5, the cited references teach or suggest all limitations within claims as described above, but do not specifically disclose wherein said resistor has a value between substantially 500 kilo-ohms to substantially 1200 kilo-ohms.

Nevertheless, it would have been obvious to one skilled in the art to modify the cited reference and arrive at the present invention with a range of resistor values so that the circuitry would operate properly. Thus, this claimed feature is not novel.

5. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894), further in view of Kimura (US 6,744,975).

Regarding claim 7, Kerns and Gates disclose all limitations within claims described above, except wherein said digital signal is a data signal that is time

multiplexed into blocks having a number of frames, each frame having at least one data slot.

In a similar endeavor, Kimura discloses video and audio multiplex recording apparatus. Kimura further discloses wherein said digital signal is a data signal that is time multiplexed into blocks having a number of frames, each frame having at least one data slot (col. 2, line 51 - col. 3, line 13).

Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kerns in view of Gates and further in view of Kimura.

The motivation/suggestion for doing so would have been to fully utilize the bandwidth or data rate available.

Regarding claim 8, Kerns, Gates, and Kimura disclose all limitations within claim as described above. Kimura further discloses wherein each of said number of frames includes a control slot carrying control data between said master component and said at least one peripheral device, said data signal carrying audio data, a sample of said audio data being transferred via said system bus across at least two frames (col. 1, lines 38-60, col. 2, line 51 – col. 3, line 13).

Regarding claim 9, Kerns, Gates, and Kimura disclose all limitations within claim as described above. Kimura also discloses wherein said data signal includes control data for controlling a characteristic of said at least one peripheral device (col. 3, lines 14-60).

Regarding claim 10, Kerns, Gates, and Kimura disclose all limitations within claim as described above. Even though the cited references do not specifically disclose wherein said at least one data slot is programmable by said master component to include a plurality of data slot; it is however obvious to one skilled in the art to combine the cited references provided above and modify so that data slot that includes a plurality of data slots.

6. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894), further in view of Suda et al. (hereinafter "Suda", US 2003/0134590).

Regarding claims 14 and 15, Kerns and Gates disclose all limitations within claims as described above. Kerns and Gates do not specifically teach or suggest a wireless external interface, said portable communication device being programmable via said wireless interface with programming data to cause internal parameters of said portable communication device to be adjusted.

In a similar endeavor, Suda discloses data communication apparatus, data communication system, data communication method and storage medium. Suda further teaches or suggests a wireless external interface, said portable communication device being programmable via said wireless interface with programming data to cause internal parameters of said portable communication device to be adjusted/real time adjustment (paragraph 0536 and fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kerns in view of Gates, and further in view of Suda, and make it more convenience for user to have a control of the device remotely or could access to the device wirelessly.

Regarding claim 16, Kerns and Gates disclose all limitations within claims as described above. Kerns and Gates do not specifically teach or suggest a wireless interface adapted to communicate wirelessly data between said portable device and another portable device.

In a similar endeavor, Suda discloses data communication apparatus, data communication system, data communication method and storage medium. Suda further teaches or suggests a wireless interface adapted to communicate wirelessly data between said portable device and another portable device (fig. 1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Kerns in view of Gates, and further in view of Suda so that user would be able to access to other device wirelessly.

7. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894), further in view of Imaizumi (US 2003/0206237 A1).

Regarding claim 17, Kerns and Gates disclose all limitations within claims as described above, except for wherein each data bit transmitted on said system bus is sampled twice to increase immunity to glitches and noise on said system bus.

In a similar endeavor, Imaizumi discloses an image processing apparatus. Imaizumi also discloses wherein each data bit transmitted on said system bus is sampled twice to increase immunity to glitches and noise on said system bus (abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a double sampling circuit in order to eliminate noises.

Regarding claim 18, Kerns, Gates, and Imaizumi both disclose all limitations within claim as described above. Imaizumi further discloses wherein said composite line carries a data signal and a synchronization signal, said double-sampling of each bit permitting said synchronization signal to be transitioned during any rising or falling edge of the system clock of said double-sampling, whereby said double-sampling enables reliable discrimination between said data signal and said synchronization signal (abstract, and paragraph 0054).

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kerns (US 6,144,748) in view of Gates (US 6,049,894), further in view of Muljono et al. (hereinafter "Muljono", US – 6,738,844 B2).

Regarding claim 21, Kerns and Gates disclose all limitations within claim as described above, except for wherein said system bus is actively driven with tri-state buffers.

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In a similar endeavor, Muljono discloses a method and system of implementing termination with a default signal line. Muljono also discloses wherein said system bus is actively driven with tri-state buffers (col. 1, lines 44-60, and col. 6, lines 3-32).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify and arrive at the claimed limitation by including the system bus actively driven with tri-state buffers in order to reduce the signal reflection.

Allowable Subject Matter

9. Claim 25 was allowed as previously indicated in Office Action dated June 20, 2006.

10. Claim 19 was objected as indicated previously in Office Action dated June 20, 2006 to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

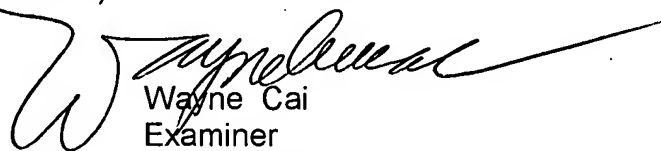
Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne Cai whose telephone number is (571) 272-7798. The examiner can normally be reached on Monday-Friday; 9:00-6:00; alternating Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duc Nguyen can be reached on (571) 272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Wayne Cai
Examiner
Art Unit 2617



DUC M. NGUYEN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600